

THE CLAIMS ARE NOT OBVIOUS

Claims 55 and 58-60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pettijohn et al. (U.S. Patent No. 4,299,904) in view of Keller (*Science and Technology of Photography*, 1993, New York: VCH) and Russell (U.S. Patent No. 4,090,031). Claims 55 and 58-60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pettijohn et al. in view of Keller and Russell, further in view of Seyewetz (A Review of Dye-Toning Processes, *British Journal of Photography*, Oct. 10, 1924, pp 611-614). Claims 55 and 58-60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pettijohn et al. in view of Keller and Russell, further in view of Seyewetz, Peterson (U.S. Patent No. 2,308,023) and Gaspar (U.S. Patent No. 1,956,122). Claims 55 and 58-60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pettijohn et al. in view of Keller and Russell, further in view of Seyewetz, Peterson, Gaspar and Asami et al. (U.S. Patent No. 5,415,978). Claims 55 and 58-60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pettijohn et al. in view of Keller and Russell, further in view of Seyewetz, Peterson, Gaspar and Asami et al., further in view of Tauleigne et al. (U.S. Patent No. 1,059,917), Kelly (GB 160137), Crabtree (U.S. Patent No. 1,305,962), von Arx (GB 472346) or Crabtree (U.S. Patent No. 1,389,742). Applicant respectfully traverses the rejections.

It is not clear how the rejections are applied to the claims. Particularly, Applicant does not understand how claims 55 and 58-60 are rejected over Pettijohn et al. in view of Keller and Russell, while at the same time being rejected over Pettijohn et al. in view of Keller and Russell, further in view of Seyewetz; over Pettijohn et al. in view of Keller and Russell, further in view of Seyewetz, Peterson, and Gaspar; over Pettijohn et al. in view of Keller and Russell, further in view of Seyewetz, Peterson, Gaspar and Asami et al.; and over Pettijohn et al. in view of Keller and Russell, further in view of Seyewetz, Peterson, Gaspar and Asami et al., further in view of Tauleigne et al., Kelly, Crabtree ('962), von Arx or Crabtree ('742). It is not clear why the other references are necessary when the Examiner already considers claims 55 and 58-60 unpatentable

over Pettijohn et al. in view of Keller and Russell. In the interest of compact prosecution, Applicant will address all of the cited references.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

MPEP 2143.

First, the references do not teach or suggest all the claim limitations. None of the references, taken alone or in any combination, discloses "means for writing data in ***digital*** form on said material" as required by claim 55, "means for reading said data in said ***digital*** form from said material" as required by claim 58, "reading said data in said ***digital*** form from said material" as required by claim 59, and "writing data in ***digital*** form onto said medium" as required by claim 60. Further, none of the references (except Russell), taken alone or in any combination, discloses a digital optical memory device. Pettijohn et al., Keller, Seyewetz, Peterson, Gaspar, Asami et al., Tauleigne et al., Kelly, Crabtree ('962), von Arx, and Crabtree ('742) all plainly fail to teach or suggest anything even remotely resembling a digital optical memory device. Each of these patents discloses methods of image forming, i.e. photography, having nothing to do with reading or writing data in digital form on an optical digital memory media. While the image data of Asami et al. may originally be in digital form, they are converted to analog form (col. 15, lines 35-36) before being applied to the acoustooptic modulators 58R, 58G, 58B. Thus, Asami et al. teaches a means for writing data in analog, not digital, form.

Russell, although disclosing a multiplayer optical data recording apparatus, teaches away from any of the combinations of references involving that patent suggested in the Office Action. Russell does not teach or suggest the use of a combination of luminescent and photosensitive materials in an optical memory. Instead,

Russell teaches one embodiment using photosensitive material (Fig. 4; col. 5) and another using photoluminescent materials (Fig. 6; cols. 6 and 7). The two embodiments are not technically compatible, since that of Fig. 4 requires spacer layers 52, whereas that of Fig. 6 omits them. As a consequence, any teaching or suggestion to combine luminescent and photosensitive materials would be against the teachings of Russell.

Second, there is no motivation to combine the references. The reasons for combining luminescent and photosensitive materials in the other applied references would have made no sense in the context of Russell. In Pettijohn et al, the two are combined to enhance a photographic image of low optical density. The Office Action does not explain how that situation would even arise in the context of the optical data record of Russell. The references are individually complete with regard to their disparate purposes; as a result, a person having ordinary skill in the art would not have seen any point in combining them.

Moreover, a combination of references involving Pettijohn et al. and Russell would have been inoperative. In Pettijohn et al., the fluorescent dye is adsorbed by the silver halide image (col. 3, first full paragraph). By contrast, in the luminescent embodiment of Russell, the data layers 64A, 64B, 64C have different light emission wavelengths, and filters 60, 62 equal in number to the data layers are used. The process of Pettijohn et al. could not have resulted in such different layers of different light emission wavelengths; instead, only a single layer could be formed. Therefore, Pettijohn et al. and Russell teach away from any combination of references involving the two.

Further, the subject matters of Pettijohn et al., Keller, Seyewetz, Peterson, Gaspar, Asami et al., Tauleigne et al., Kelly, Crabtree ('962), von Arx, and Crabtree ('742) are non-analogous art. In a rejection over a combination of references, the references to be combined must be analogous prior art.

Two criteria have evolved for determining whether prior art is analogous: 1) whether the art is from the same field of endeavor, regardless of the problem addressed, and 2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.

In re Clay, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992). A rejection under 35 U.S.C. § 103 involving non-analogous art that is not reasonably pertinent to the problem the present invention attempts to solve cannot be sustained. See *Id.*, 1061. Neither Pettijohn et al., Keller, Seyewetz, Peterson, Gaspar, Asami et al., Tauleigne et al., Kelly, Crabtree ('962), von Arx, nor Crabtree ('742) discloses anything remotely resembling a digital optical memory device. Further, the subject matters disclosed by Pettijohn et al., Keller, Seyewetz, Peterson, Gaspar, Asami et al., Tauleigne et al., Kelly, Crabtree ('962), von Arx, and Crabtree ('742) are not reasonably pertinent to the problem solved by the instant invention. The present invention resolves the problem of providing a super dense optical memory device for information storage; and a person of ordinary skill in the art would not reasonably have expected to solve the problem of providing a super dense optical memory device for information storage by considering references dealing with image forming and photography.

Therefore, for the reasons discussed above, a *prima facie* case of obviousness has not been established. Accordingly, the rejections under 35 U.S.C. § 103 are improper and should be withdrawn.

DOUBLE PATENTING DOES NOT EXIST

Claims 56 and 57 stand rejected under 35 U.S.C. § 101 for double patenting over claims 10-12 of U.S. Pat. No. 6,265,140 ('140 patent). Applicant respectfully traverses the rejection.

The invention of claims 10-12 of the '140 patent is not the same as the instant invention as claimed in claims 56-57.

A reliable test for double patenting under 35 U.S.C. § 101 is whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent. *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970). Is there an embodiment of the invention that falls within the scope of one claim, but not the other? If there is such an embodiment, then identical subject matter is not defined by both claims and statutory double patenting would not exist.

MPEP 804. Claims 56 and 57 of the instant application require that the medium comprises "a plurality of layers of a luminescent material ... each of said plurality of layer comprising insoluble microparticles dispersed in a water soluble polymer". Claims 10-12 of the '140 patent recite that "said memory device has only one layer of said water soluble polymer and dispersed microparticles" (col. 22, lines 6-8) whereas claims 56 and 57 of the instant application recite "a plurality of layers of a luminescent material." Thus, a device having one layer would infringe claims 10-12 of the '140 patent but would not literally infringe claims 56 and 57 of the instant application. Accordingly, the rejection fails the test for statutory double patenting and should be withdrawn.

CONCLUSION

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Applicant has responded to the Office action mailed May 2, 2002. All of the claims are now believed to be allowable and favorable action is respectfully requested.

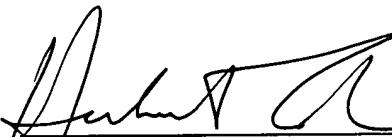
In the event that there are any questions relating to this Amendment or to the application in general, it would be appreciated if the examiner would telephone the undersigned attorney concerning such questions so that the prosecution of this application may be expedited.

Please charge any shortage or credit any overpayment of fees to BLANK ROME COMISKY & McCUALEY LLP, Deposit Account No. 23-2185 (109289-00193). In the event that a petition for an extension of time is required to be submitted herewith and in the event that a separate petition does not accompany this response, applicant hereby petitions under 37 C.F.R. 1.136(a) for an extension of time for as many months as are required to render this submission timely.

Any fees due are authorized above.

Respectfully submitted,

Date: July 24, 2002

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IN THE CLAIMS

57. The memory device of claim [55] 56, wherein the two-laser system comprises means for two-photon writing of the data in a three-dimensional optical matrix in said material.